IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with <u>underlining</u> and deleted text with ~~strikethrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

Please AMEND claims 1, 15, 16, and 17 in accordance with the following:

1. (currently amended) A document organizing apparatus for organizing a group of documents based on keywords, comprising:

a relation extracting unit to extract one of a hierarchical relation<u>, an equivalent relation</u> and an associative relation between given keywords as an extracted relation, the hierarchical <u>relation representing a first set of keywords that have concepts with a hierarchical relationship, the equivalent relation representing a second set of keywords that have concepts with a synonymous relationship,</u> and the associative ~~relations~~ <u>relation</u> representing ~~relations between~~ <u>that</u> a first keyword ~~included in a first hierarchical relation and~~ <u>is associated with</u> a second keyword ~~included in a second hierarchical relation~~ <u>when the first and second keywords have neither hierarchical nor synonymous relationships</u>;

a generating unit to generate directory information for accessing the group of documents by using the extracted relation <u>of the hierarchical relation, the equivalent relation and the associative relation</u> as ~~a link between the first and second~~ <u>links among</u> keywords; and

an outputting unit to output the directory information.

2. (previously presented) The document organizing apparatus as set forth in claim 1, wherein said relation extracting unit includes:

a rule extracting unit to extract an association rule containing a pair of keywords from the given keywords; and

a rule evaluating unit to evaluate the association rule and to assign one of the extracted relation and an equivalent relation to the pair of keywords.

3. (previously presented) The document organizing apparatus as set forth in claim 2, wherein said rule extracting unit extracts a pair of keywords with a high cooccurrence frequency as the association rule, and

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wherein said rule evaluating unit assigns a relation of the extracted pair of keywords thereto based on the high cooccurrence frequency.

4. (previously presented) The document organizing apparatus as set forth in claim 1, wherein said relation extracting unit includes:

a unit to extract a pair of keywords with a high cooccurrence frequency from the given keywords; and

a unit to assign one of the extracted relation and an equivalent relation to the pair of keywords based on the high cooccurrence frequency of the pair of keywords.

5. (previously presented) The document organizing apparatus as set forth in claim 1, wherein said relation extracting unit divides one of the given keywords into character sub-strings and extracts an inclusion relation between the given keyword and the character sub-strings as the hierarchical relation.

6. (previously presented) The document organizing apparatus as set forth in claim 1, wherein said relation extracting unit includes:

a unit to extract the first hierarchical relation from a pair of keywords based on a cooccurrence frequency thereof;

a unit to extract the second hierarchical relation from an inclusion relation between one of the given keywords and character sub-strings thereof; and

a unit to merge the first hierarchical relation, the second hierarchical relation, and another hierarchical relation given from outside said document organizing apparatus.

7. (previously presented) The document organizing apparatus as set forth in claim 1,

wherein said relation extracting unit extracts both the hierarchical and associative relations,

wherein said generating unit generates a hypertext index having at least one of a path from a top category to a directory, a higher hierarchical word of the directory, a sub-category of the directory, an associative word of the directory, and a kana/alphabetic order index, as the directory information using the hierarchical and associative relations, and

wherein said outputting unit organizes the group of documents corresponding to the generated hypertext index and outputs an organized result.

8. (previously presented) The document organizing apparatus as set forth in claim 7, wherein said generating unit automatically calculates a path from a keyword of the top category to each keyword using the hierarchical and associative relations and sets an obtained path as the path from the top category to the directory.

9. (previously presented) The document organizing apparatus as set forth in claim 1,
    further comprising a unit to add an equivalent relation between keywords based on a synonym list given from outside said document organizing apparatus, and
    wherein said generating unit generates directory information including the equivalent relation.

10. (previously presented) The document organizing apparatus as set forth in claim 1,
    further comprising a unit to delete a keyword based on an unnecessary word list given from outside said document organizing apparatus,
    wherein said generating unit generates directory information excluding the deleted keyword.

11. (previously presented) The document organizing apparatus as set forth in claim 1,
    further comprising a unit to input a given hierarchical relation between keywords,
    wherein said generating unit generates directory information using the given hierarchical relation.

12. (previously presented) The document organizing apparatus as set forth in claim 1,
    further comprising:
        a unit to store old keywords; and
        a comparison unit to compare the given keywords and the old keywords and identifying a new keyword,
    wherein said outputting unit outputs the new keyword in a highlighted format.

13. (previously presented) The document organizing apparatus as set forth in claim 1,
    further comprising a unit to access the directory information, and
    wherein a user accesses the group of documents through the directory information.

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14. (previously presented) The document organizing apparatus as set forth in claim 1, further comprising:

a keyword searching unit to search for a keyword included in the directory information; and

a document searching unit to search contents of documents in the group of documents, and

wherein a user obtains document information using said keyword searching unit and said document searching unit.

15. (currently amended) An information organizing apparatus for organizing arbitrary information based on keywords, comprising:

a relation extracting unit to extract one of a hierarchical relation, an equivalent relation and an associative relation between given keywords as an extracted relation, the hierarchical relation representing a first set of keywords that have concepts with a hierarchical relationship, the equivalent relation representing a second set of keywords that have concepts with a synonymous relationship, and the associative ~~relations~~ relation representing ~~relations between~~ that a first keyword ~~included in a first hierarchical relation and~~ is associated with a second keyword ~~included in a second hierarchical relation~~ when the first and second keywords have neither hierarchical nor synonymous relationships;

a generating unit to generate directory information for accessing the arbitrary information by using the extracted relation of the hierarchical relation, the equivalent relation and the associative relation as a links ~~between the first and second~~ among keywords; and

an outputting unit to output the directory information.

16. (currently amended) A computer-readable recording medium which stores a program that causes a computer, that organizes a group of documents based on keywords, to perform a method comprising:

extracting one of a hierarchical relation, an equivalent relation and an associative relation between given keywords as an extracted relation, the hierarchical relation representing a first set of keywords that have concepts with a hierarchical relationship, the equivalent relation representing a second set of keywords that have concepts with a synonymous relationship, and the associative ~~relations~~ relation representing ~~relations between~~ that a first keyword ~~included in a first hierarchical relation and~~ is associated with a second keyword ~~included in a second~~

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hierarchical-relation when the first and second keywords have neither hierarchical nor synonymous relationships; and

generating directory information for accessing the group of documents by using the extracted relation of the hierarchical relation, the equivalent relation and the associative relation as a-links between the first and second among keywords.

17. (currently amended) A document organizing method, comprising:

extracting one of a hierarchical relation, an equivalent relation and an associative relation between given keywords as an extracted relation, the hierarchical relation representing a first set of keywords that have concepts with a hierarchical relationship, the equivalent relation representing a second set of keywords that have concepts with a synonymous relationship, and the associative relations-relation representing relations between that a first keyword-included-in-a first-hierarchical-relation and is associated with a second keyword-included-in-a-second hierarchical-relation when the first and second keywords have neither hierarchical nor synonymous relationships;

generating directory information for accessing the group of documents by using the extracted relation of the hierarchical relation, the equivalent relation and the associative relation as a links between-the-first-and-second among keywords; and

organizing the group of documents based on the directory information.

18. (previously presented) A method for generating relations between keywords extracted from documents, comprising:

storing documents with previously assigned keywords;

obtaining an initial keyword hierarchy and an equivalent keywords list; and

extracting relations between the previously assigned keywords, including at least one of multiple ancestor hierarchical relations and associative relations based on statistical occurrence of the keywords, with reference to the initial keyword hierarchy and the equivalent keyword list.